



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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September 14, 1992

Mr. Paul Pak  
U.S. Department of Energy  
P.O. Box 550, A5-19  
Richland, WA 99352



Dear Mr. Pak:

RE: SEMIWORKS Source Aggregate Area Management Study  
Report Review

Ecology, along with the U.S. Environmental Protection Agency (EPA) as a support agency, has completed the review of the SEMIWORKS Source Aggregate Area Management Study Report. We have restricted our review mostly to those sections that directly apply to SEMIWORKS. We expect our comments on the generic text in the U as well as S, Z, T, and PUREX AAMSR's, to be considered for incorporation into the generic text of the SEMIWORKS Source AAMS Report. Attached are the chapter specific comments. A diskette containing these comments is provided, in WordPerfect 5.1 format.

Overall, the report is thorough. However, as our review comments indicate, clarification of certain areas and additional technical information is necessary to fulfill the scope of the study. It is recommended that these comments be incorporated into the next draft of this report.

We expect to evaluate progress on comment resolution on October 13, 1992. At that time, a comment resolution meeting can be scheduled. Draft B of this document is expected for review 30 days after receiving and agreeing to the disposition of the comments as stated on the comment record form.

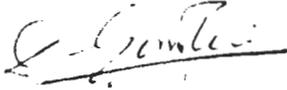


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Paul Pak  
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If you have any questions, please do not hesitate to call me at  
(509)546-4301.

Sincerely,



Dib Goswami  
Unit Manager  
Nuclear and Mixed Waste Management Program

DG:s1  
Enclosure

cc: Steve Wisness, DOE  
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Richard Carlson, WHC  
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Larry Goldstein, Ecology  
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~~Richard Carlson, WHC~~  
Administrative Record (Semiworks Source AAMS)

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## SPECIFIC COMMENTS

**1. Section 2.2, page 2-2, lines 39-40**

State the status or use of the 201-C Process Building from 1967 to decommissioning in 1983.

**2. Section 2.3.1, pages 2-6, line 6**

A description of decontamination procedures implemented, wastes generated, and disposal methods used should be included.

**3. Section 2.3.1., pages 2-6, line 21**

The Comprehensive Environmental Response, Compensation and Liability Act requirements to be integrated into the decommissioning project should be specified.

**4. Section 2.3.1.1, page 2-6, lines 19-21**

State the plans for the completion of the entire barrier.

**5. Section 2.3.1.1.1, page 2-7 and Table 2-2, page 2T-2a**

The text in this section states that plutonium, strontium, cerium, technetium, and promethium were products obtained during operations of the 201-C Process Building. Only plutonium and strontium are listed in Table 2-2 as part of the reported radioactive waste inventory. In addition, americium-241 is listed in the table but not discussed in the text.

**6. Section 2.3.1.1.1, pages 2-7, lines 22-24, also pages 2-8, lines 22-23**

The criteria and procedure used for determining whether the dismantled portions of the structures are either contaminated or uncontaminated should be specified. It is recommended that contaminants and concentrations be identified if available.

**7. Section 2.3.1.1.1, pages 2-7, line 27** The components of the complete proposed engineering cover to be installed should be identified, as well as the initial component, the ash cover.

**8. Section 2.3.1.1.3, pages 2-8, line 18**

The text should clearly indicate whether process cooling water was the only waste discharged. If it was not, other waste streams and disposal locations should be identified.

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**9. Section 2.3.1.1.3, page 2-8, lines 20-25**

Explain how the 271-C Aqueous Makeup and Control Building was contaminated if it was only used as a control center and non-radioactive solution makeup area.

**10. Section 2.3.1.1.4, page 2-9, lines 35-36**

The estimated radionuclide waste inventories for the 291-C Ventilation system are not listed in Table 2-2.

**11. Section 2.3.1.1.6, page 2-10, lines 27-30**

Explain how tanks and piping were contaminated in the 276-C Solvent handling facility. The text implies only process solvents for treatment and storage.

**12. Section 2.3.1.1.8, pages 2-11, line 24**

The "solid special nuclear materials and fuels" used during criticality research should be identified.

**13. Section 2.3.2.1, page 2-12, line 19**

Consider including the chemical inventory for the 241-CX-70 Storage Tank in Table 2-3.

**14. Section 2.3.3.1, pages 2-15, line 33**

The method used to estimate the volume of contaminated soil at the 216-C-1 Crib as 200 cubic yards should be described. This comment applies to all contaminated soil volumes referenced on page 2-16, line 12; page 2-16, line 34; page 2-17, line 13; page 2-17, line 37; and page 2-18, line 40. If the contaminated soil volumes include the affected vadose zone, the method for determining the extent of contamination should be described.

**15. Section 2.3.3.2, pages 2-16, line 17**

The depth of the gravel cover, and a description of the condition of the gravel road running across the former 216-C-3 Crib site should be included to ensure that contaminated material is not uncovered.

**16. Section 2.3.4.1, pages 2-19, line 39**

This section states that the 291-C Stack receives "seal water effluent from the stack." A short definition of the effluent should be included.

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**17. Section 2.3.5.1, pages 2-21, lines 1-7**

The constituents and volumes of the "miscellaneous wastewater" discharged to the 216-C-9 Pond from the Critical Mass Laboratory and 201-C Process Building should be identified.

**18. Section 2.3.10.1, pages 2-25, line 36**

The previous locations (i.e., process tanks and contents) of the two pumps removed from the 201-C Process Building which leaked during Unplanned Release UN-200-E-36, should be identified. The constituents of the released liquid should also be determined.

**19. Section 2.4.1.1.1, pages 2-29, line 25**

If the reduction and oxidation plant (REDOX) produced high-level wastes, then the waste composition and disposal or storage location(s) should be included in this section. Also, the two waste management units listed, 216-C-1 and 216-C-3 Cribs were only active between 1953 and 1954. The timeframe that the REDOX process was operational and the disposal locations used for the waste streams generated should be identified.

**20. Section 2.4.1.1.2, pages 2-30, line 9**

The list of plutonium uranium extraction plant (PUREX) wastes generated includes only low-level wastes routed to the cribs and wastes transferred to the 241-CX-72 Storage Tank in 1952. High-level PUREX wastes generated and disposal locations should be included in this section.

**21. Section 2.4.2, pages 2-31, line 21**

Provide a statement clarifying whether the Critical Mass Laboratory generated high-level wastes. If it did, describe procedures for disposing or storing the wastes.

**22. Table 2-2, page 2T-2b**

Supply radionuclide inventory information for UN-200-E-98 and -141 to table; state if quantities are unknown.

**23. Table 2-2, page 2T-2b**

Define note (8) other sources.

**24. Section 3.6.3, pages 3-37, lines 38-42**

Additional information on the wells in the vicinity of the Semiworks area (Wells 699-40-100-C, 699-528-EO, 6652-C, 699-S1-8J), such as depth, screened interval, and aquifer should be provided.

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**25. Figures 3-17 and 3-18**

Clarify the statement "vertical exaggeration x 5 ? Is it Vertical exaggeration = 5 x horizontal scale ?

**26. Figure 3-36**

None of the sections presented (eg. figures 3-17 and 3-18) shows Unit E gravels as depicted in figure 3-36. Investigate if there is any Gravel E unit in the geologic cross-sections and if present, modify the figures accordingly.

**27. Section 4.1.1.1, page 4-4, First para**

Give information on the present status of the air samplers.

**28. Section 4.1.1.2.3, pages 4-6, line 5**

An estimate for the total surface area contaminated within the Semiworks should be provided.

**29. Section 4.1.1.5, pages 4-9, lines 15-33**

This paragraph attempts to conservatively estimate the potential for subsurface contaminant migration from the vadose zone to groundwater by comparing the waste volume discharged to the pore volume. This is an oversimplification of the complex factors affecting fate and transport of contaminants in the vadose zone. The mobility of the liquid contaminants depends on the volume of the discharge, as well as the physical and chemical properties of the contaminants and the hydraulic properties of the porous medium. A statement should be added that the fate and transport of contaminants due to various processes were not included in this analysis.

**30. Section 4.1.2.2.2, pages 4-11, line 31**

A rationale for not reporting the results of the investigation of high levels of radioactivity detected in soils overlying the 241-CX-71 Storage Tanks should be included.

**31. Section 4.1.2.2.3, pages 4-11, line 39**

Information on the thickness of the concrete slab installed over tank 241-CX-72 and the volume of surface soils removed before concrete was installed should be provided.

**32. Section 4.1.2.3, pages 4-12 and 13**

This section on cribs and drains contains very little site-specific information on these waste management units. At a minimum, estimated volume of contaminated soils in the cribs reported in Section 2.3.3, and suspected contaminants should be included in this section.

**33. Section 4.1.2.5, pages 4-14, line 4**

This section indicates no radiation survey was performed but Section 2.3.5.1 refers to a radiation survey performed in 1978. This inconsistency should be clarified.

**34. Section 4.1.2.10.5, pages 4-16, line 13**

The volume or nature of contamination known for the soils buried near the 201-C Process Building should be included.

**35. Figure 4-1, page 4F-1**

Figure 4-1 should show the prevailing wind direction, as well as the high-volume air sampler locations.

**36. Tables 4-4, 4-7, 4-8, 4-9; pages 4T-4 through 4T-9**

These tables present the results of air sampling (Table 4-4), soil sampling (Tables 4-7 and 4-8), and wastewater sampling (Table 4-9). The health and environmental significance of the contaminant concentrations detected should be discussed. The impact of these contaminants and concentrations on the selection of contaminants of concern should also be discussed.

**37. Section 5.2.1, page 5-3, second para**

Recent radiation surveys performed in 14 of 25 Semi-Works AAMSR, but which units were completed is not stated. Of the 14 units surveyed, 10 had no contamination, which ones did or did not? Provide a table listing units completed, citing which units had contamination, significant changes reference to past surveys.

**38. Section 5.2.2, page 5-4, lines 34-41**

The Westinghouse Hanford Environmental Protection group policies state that "the presence of any alpha constitutes a potential threat to human health and qualifies a waste management unit for high priority". Current site conditions (ie. the presence of an ash barrier) could reduce the human health risk associated with contamination, but until current sampling/surveying is completed, past radiological surveys confirming contamination should be used in the identification of high priority sites. Additional sites should be classified as high priority until data can show no contamination is present.

The above is also applicable to section 5.4, page 5-7, lines 33-40

**39. Section 5.2.2, page 5-5, lines 4-6**

The test states that posting and access controls are to be implemented at a level of 100 ct/min above background beta/gamma, and/or 20 ct/min alpha, for the purpose of personnel protection.

However, the current WHC Radiological Worker II Training Manual list allowable contamination limits for personnel as 100 ct/min above background beta/gamma and 3ct/min alpha. These limits are also criteria for the identification of high priority waste management units.

**40. Section 5.2.3, page 5-5, line 34**

Reference to MIBK is an acronym not listed on page xi or xii. Add MIBK to list.

**41. Section 5.3, line 18-19, first para**

Ranking of hazards is performed by HRS, mHRS, and Westinghouse Hanford Environmental Protection Group. Why mention the latter when not a single unit is prioritized using this method, as in Table 5-1? Provide the criteria used to prioritize the sites to justify enabling regulators to make decisions regarding its validity or relevance (Westinghouse Hanford Environmental Protection Group).

**42. Section 5.3, page 5-6, lines 30-32**

The text refers to criteria used in HRS scoring. Certain criteria have changed since the finalization of the HRS on December 14, 1990, and the text should note if scoring was done using the old system.

**43. Section 5.4, page 5-7, lines 30-31**

The text should be changed to reflect additional high priority sites.

**44. Table 5-1, page 5T-1a**

Several waste management units rated as low priority in the table should be rated as high priority. using the criteria presented in the AAMSR for the identification of high priority sites, the following waste management units should be considered as high priority: 201-C process building, 291-C ventilation system, Storage Tanks 241-CX-70 and 241-CX-72, and the 216-C-2 Reverse well.

**45. Section 5.4, pages 5-7, line 16**

Section 2.3.2.3, page 2-14, line 10, indicates that transuranic sludge material is still present in tank 241-CX-72. This tank is a single-shell carbon steel tank that began operation in 1957 and has potential to release transuranic material directly to the environment. The 241-CX Storage Tanks were not evaluated by the hazard ranking or modified hazard ranking systems. Provide justification for the low priority assigned to this waste management unit.

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**46. Page xi**

CERCLA represents Comprehensive Environmental Response, Compensation, and Liability Act, not Comprehensive Environmental Release as stated.

**47. Section 8.2.2.4, page 8-19, line 35**

To state that samples will be analyzed using Test Methods for Evaluating Solid Waste is inappropriate at this time. Negotiations will occur during work plan development to determine the appropriate method of analysis.

**48. Section 8.3.1, page 8-22, line 15**

The statement which infers that more data needs to be collected because of the size of this operable unit is questionable. This is one of the smaller operable units and the size of it should not be a determining factor.

**49. Section 8.3.1, page 8-23, line 12**

EII 4.3 is now approved for handling of waste and should be noted here.

**50. Table 8-6, page 8T-6a**

Rationale for not taking subsurface sampling for various cribs must be clarified.

**51. Table 8-5, pages 8T-5**

The data gap "characterization of the subsurface below and in the vicinity" should be added to the following waste management units: plants, buildings, and storage areas; ponds, ditches, and trenches; septic tanks and associated drain fields; transfer facilities, diversion boxes, and pipelines; and unplanned releases.

**52. Section 9.1, pages 9-4, line 2**

New waste management units identified should have an expedited determination of regulatory status and be included in the AAMS process.

**53. Section 9.1.2, pages 9-8, line 16**

The method to perform the cost/benefit analysis of interim remedial measures (i.e., qualitative or quantitative) should be specified.

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# CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: SEMIWORKS SOURCE AGGREGATE AREA MANAGEMENT STUDY REPORT REVIEW

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